

WHAT IS CLAIMED IS:

AD 1. A vehicle headlamp apparatus comprising:

map information acquiring means for acquiring positional  
information on one's own vehicle on a map and the environmental  
5 information;

environmental condition detection means for detecting an  
environmental condition relating to a traveling road on which  
7 one's own vehicle is driven according image information or the  
information acquired from a radar; and

10 light distribution control means for varying the light  
distribution of a headlamp attached to a vehicle in accordance  
with variation with the travel condition of one's own vehicle  
and the environmental condition,

15 wherein said light distribution control means performs  
light distribution control over the headlamp according to one  
of information adopted with the priority given thereto out of  
the information derived from said map information acquiring  
means and the information detected by said environmental condition  
detection means or according to information complemented with  
20 both kinds of information above.

2. A vehicle headlamp apparatus as claimed in claim 1,  
wherein a lane with respect to a road on which one's own vehicle  
is being driven is detected and the detected result is judged  
25 good or bad;

light distribution control over the headlamp is performed  
by switching the information detected by said environmental

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condition detection means and the information derived from said  
map information acquiring means according to the result thus  
judged.

5           3.    A vehicle headlamp apparatus as claimed in claim 2,  
wherein when the result of lane detection is judged to be good,  
priority is given to the information detected by said environmental  
condition detection means.

10           4.    A vehicle headlamp apparatus as claimed in claim 1,  
wherein when the first information acquired by said map information  
acquiring means is different from the second information acquired  
by said environmental condition detection means, the first  
information is modified according to the second information  
15   and the light distribution control over the headlamp is performed  
by using the modified information.

20           5.    A vehicle headlamp apparatus as claimed claim 1, wherein  
said environmental condition detection means comprises an imaging  
unit for forming an image ahead of the vehicle; when detection  
capability of said imaging unit is low, light distribution control  
means performs light distribution control over the headlamp  
according to the information derived from said map information  
acquiring means.

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          6.    A vehicle headlamp apparatus as claimed claim 2, wherein  
said environmental condition detection means comprises an imaging

unit for forming an image ahead of the vehicle; when lane-mark  
detection capability of said imaging unit is low, light  
distribution control means performs light distribution control  
over the headlamp according to the information derived from  
5 said map information acquiring means.

7. A vehicle headlamp apparatus as claimed in claim 1,  
wherein when worsening of weather is detected, said light  
distribution control means performs light distribution control  
10 over the headlamp according to the information derived from  
said map information acquiring means.

8. A vehicle headlamp apparatus as claimed in claim 1,  
further comprising steering information acquiring means for  
15 acquiring steering information to supply said light distribution  
control means.

9. A vehicle headlamp apparatus as claimed in claim 1,  
wherein said light distribution control means controls an optical  
20 axis of the head lamp in a vertical direction to vary the light  
distribution thereof.

10. A vehicle headlamp apparatus as claimed in claim 1,  
wherein said light distribution control means controls an infrared  
25 lamp that emits a near infrared ray.

11. A vehicle headlamp apparatus as claimed in claim 1,

wherein said light distribution control means controls an optical axis of the head lamp in a lateral direction to vary the light distribution thereof.

5 ~~A2~~ 12. A vehicle headlamp apparatus as claimed in claim 1, wherein said light distribution control means controls an optical axis of the head lamp to direct downward so as to illuminate an area ahead of the own vehicle.

10 13. A vehicle headlamp apparatus as claimed in claim 1, wherein said light distribution control means controls to irradiate a lane mark near the own vehicle.

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